

Claims:

1. A system for matching an antenna (ANT) for a wireless communication device, **characterized** in that it comprises:

- 5 — detecting means (4, 5, 12) to detect the matching of the antenna (ANT) and to generate a matching signal on the basis of the detected matching,
- control means (7) to examine said matching signal, to determine the need for matching, and to generate a control signal on the basis of said matching signal, and
- 10 — antenna matching means (9) to adjust the matching of the antenna (ANT) on the basis of said control signal.

20 ~~20~~ The matching system according to claim 1, **characterized** in that said detecting means (4, 5, 12) comprise means (1, 5) to measure the radio power reflected from the antenna (ANT) and means (6) to generate a matching signal on the basis of the measurement on the reflected radio power.

20 *Sub* 3. The matching system according to claim 2, **characterized** in that said detecting means (4, 5, 12) also comprise means (1, 4) to measure the radio power to be supplied to the antenna (ANT) and means (6) to generate the matching signal on the basis of said measurement on the reflected radio power and said measurement on the radio power to be supplied to the antenna (ANT) of the wireless communication device.

4. A wireless communication device (MS) comprising at least an antenna (ANT), **characterized** in that the wireless communication device (MS) also comprises:

- 30 — detecting means (4, 5, 12) to detect the matching of the antenna (ANT) and to generate a matching signal on the basis of the detected matching,
- control means (7) to examine said matching signal, to determine the need for matching, and to generate a control signal on the basis of said matching signal, and
- 35 — antenna matching means (9) to adjust the matching of the antenna (ANT) on the basis of said control signal.

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5 ~~5/7~~ The wireless communication device (MS) according to claim 4, **characterized** in that said detecting means (4, 5, 12) comprise means (1, 5) to measure the radio power reflected from the antenna (ANT) and means (6) to generate a matching signal on the basis of the measurement on the reflected radio power.

6. The wireless communication device (MS) according to claim 5, **characterized** in that said detecting means (4, 5, 12) also comprise means (1, 4) to measure the radio power to be supplied to the antenna (ANT) and means (6) to generate the matching signal on the basis of said measurement on the reflected radio power and said measurement on the radio power to be supplied to the antenna (ANT) of the wireless communication device.

15 ~~7/6~~ The wireless communication device (MS) according to claim 4, ~~5 or 5,~~ **characterized** in that said detecting means (4, 5, 12) comprise means (12) to measure a distance and means (6) to generate the matching signal on the basis of said distance measurement.

20 8. The wireless communication device (MS) according to claim 7, **characterized** in that said means (12) to measure a distance comprise an infrared transmitter (12a) and an infrared receiver (12b).

25 ~~9/8~~ The wireless communication device (MS) according to ~~any of the claims 4 to 8,~~ in which the antenna (ANT) is arranged to be placed in at least two different positions, **characterized** in that said detecting means (4, 5, 12) comprise means (12) to examine the position of the antenna (ANT) and means (6) to generate the matching signal on the basis of the position of the antenna (ANT).

30 10. The wireless communication device (MS) according to ~~any of the claims 4 to 8,~~ comprising at least a keypad cover (13) arranged to be placed in at least two different positions, **characterized** in that said detecting means (4, 5, 12) comprise means (14) to examine the position of the keypad cover (13) and means (6) to generate the matching signal on the basis of the position of the keypad cover (13).

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5 11. A method for matching the antenna of a wireless communication device, **characterized** in that in the method, the matching of the antenna (ANT) is detected, a matching signal is generated on the basis of the detected matching, said matching signal is examined to determine the need for matching the antenna (ANT), wherein a control signal is generated on the basis of said matching signal, and the matching of the antenna (ANT) is adjusted on the basis of said control signal.

10 12. The method according to claim 11, **characterized** in that said matching signal is generated by measuring the radio power reflected from the antenna (ANT).

15 13. The method according to claim 12, **characterized** in that said matching signal is generated by measuring also the radio power to be supplied to the antenna (ANT).

20 14. The method according to claim 11, **characterized** in that said matching signal is generated by measuring the distance of the wireless communication device from objects in the vicinity of the wireless communication device at the time.

25 15. The method according to claim 11, in which the antenna (ANT) can be placed in at least two different positions, **characterized** in that for generating said matching signal, the position of the antenna (ANT) is examined.

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